Scribner

Precision & Accuracy

then and now

Scribner

Is it a more useful tool for log value determination than cubic scale?

then and now

Scribner

Precision:

Capacity to differentiate between logs of different sizes

Accuracy:

Degree that measurement meets its objective – actual lumber recovery

then and now

Scribner

then …

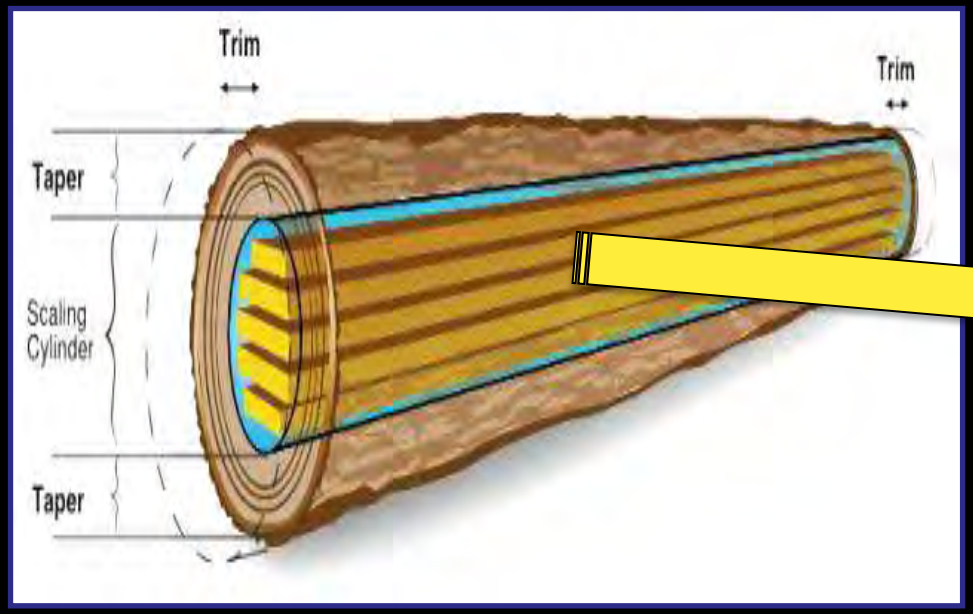
Designed for 19th century technology and milling techniques

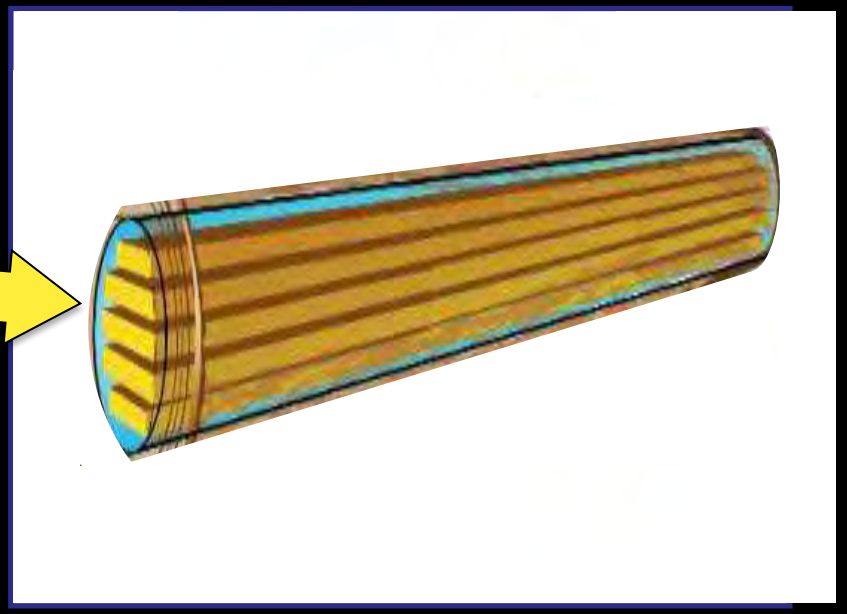
¼” kerf

Scribner's original design assumptions…

Ignored taper

scaling cylinder only





How precise & accurate is Scribner for logs 12"+ ?

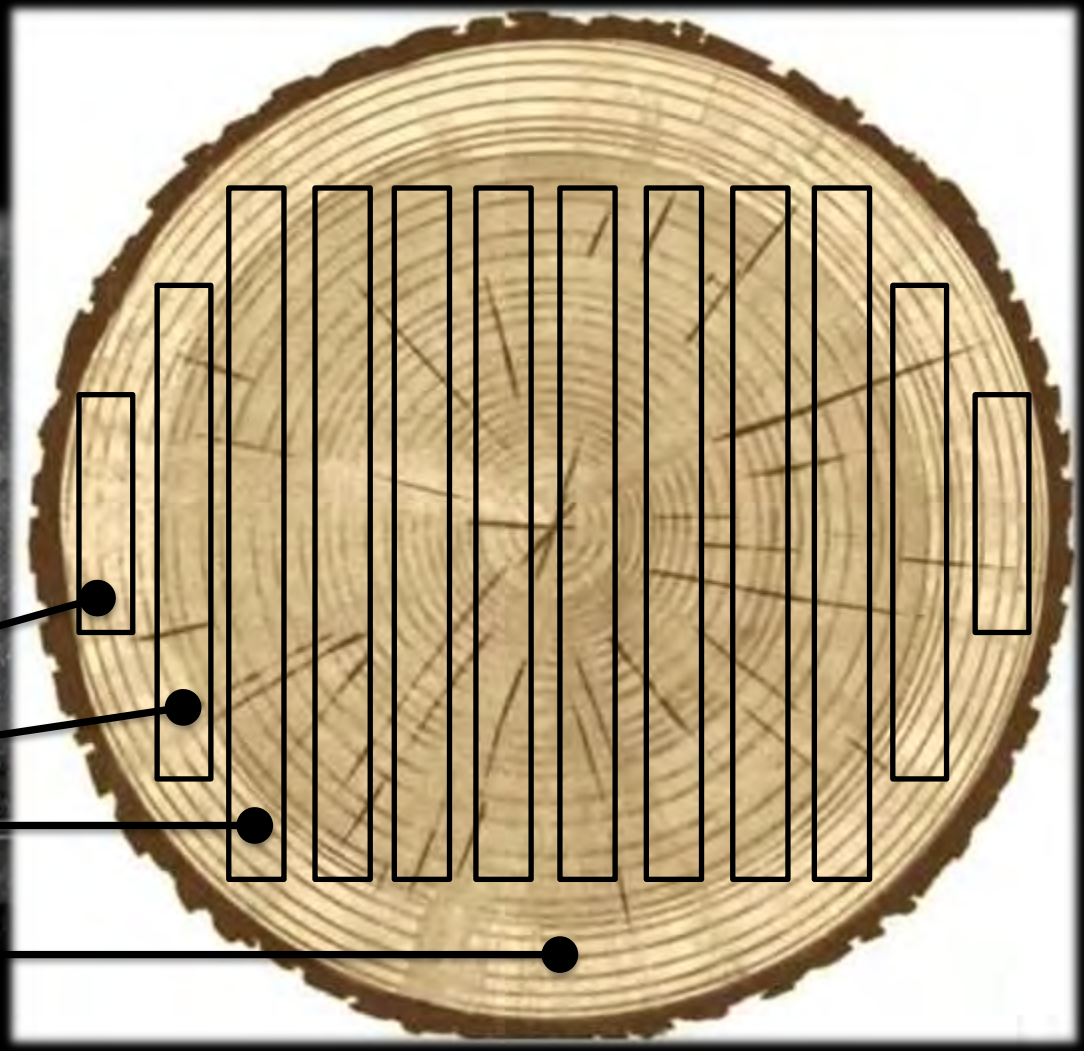
Scribner

then …

10 bf/ft
- 2 - 1 x 4
- 2 - 1 x 8
- 8 - 1 x 12

Slab 1 ¾”

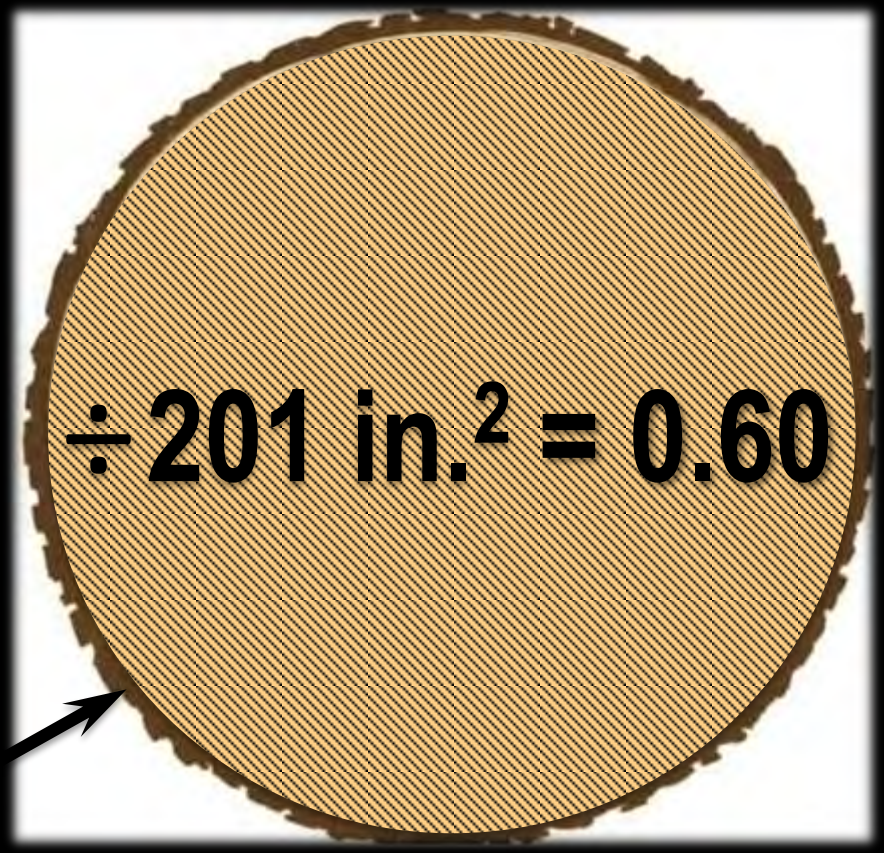
16” SED



Scribner Scaling Cylinder LRF

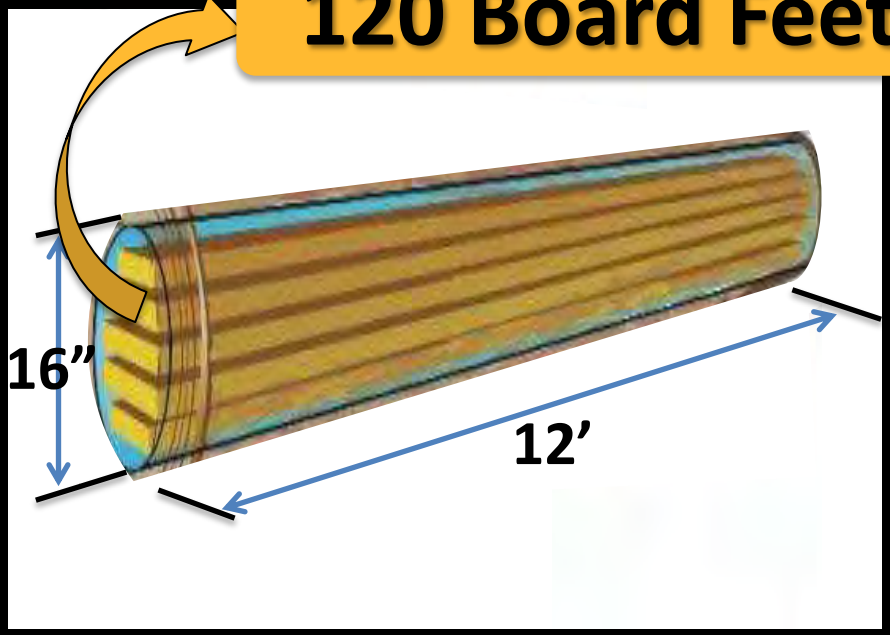
Equal to Ratio of:

Cross-Sectional Area of Lumber ÷ Cross-Sectional Area of SED Log = LRF



16” SED

Scribner Scaling Cylinder LRF :



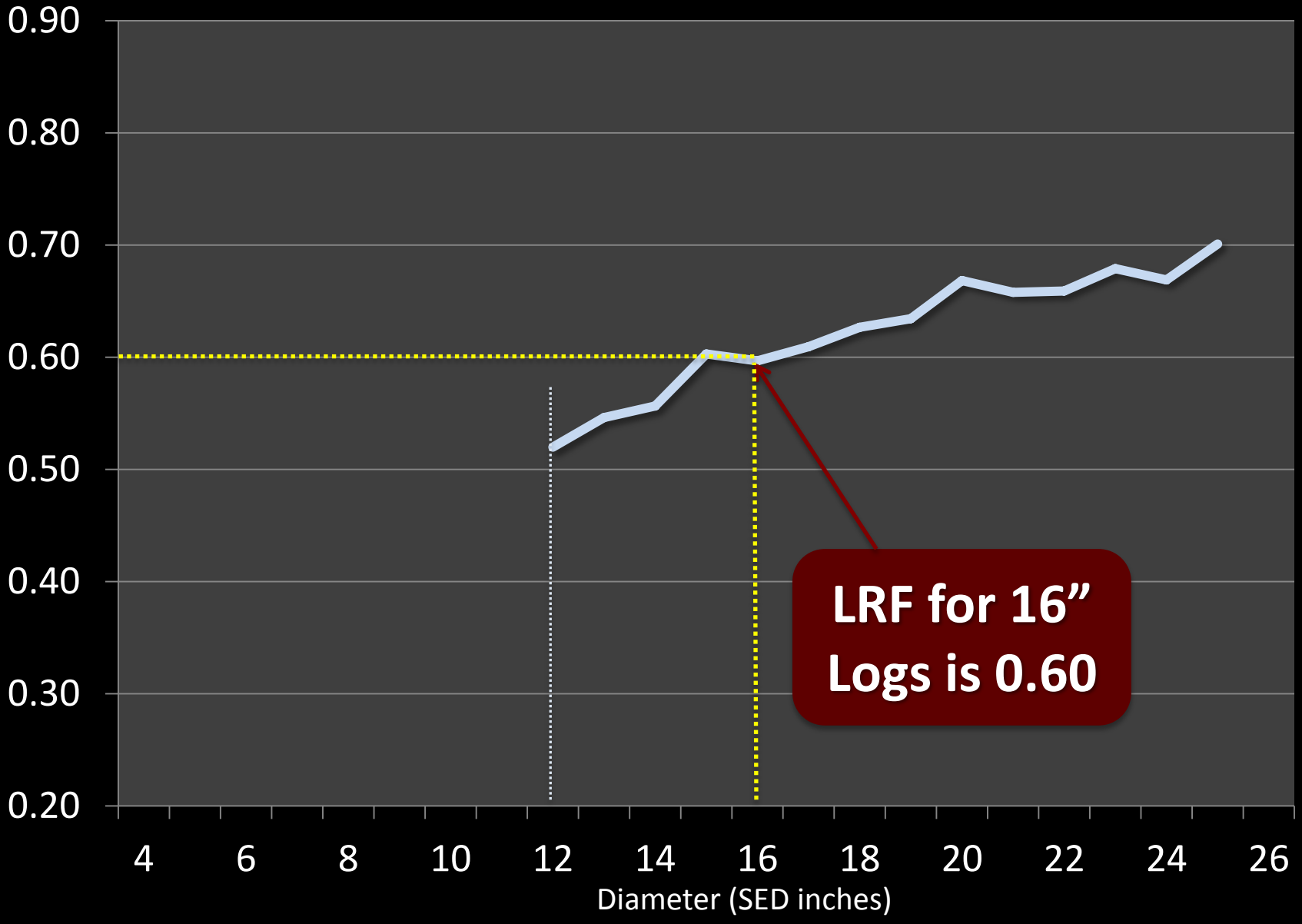
120 Board Feet **÷ 12 = 10.0 Cubic Feet**

Scribner’s Lumber Recovery Factor:

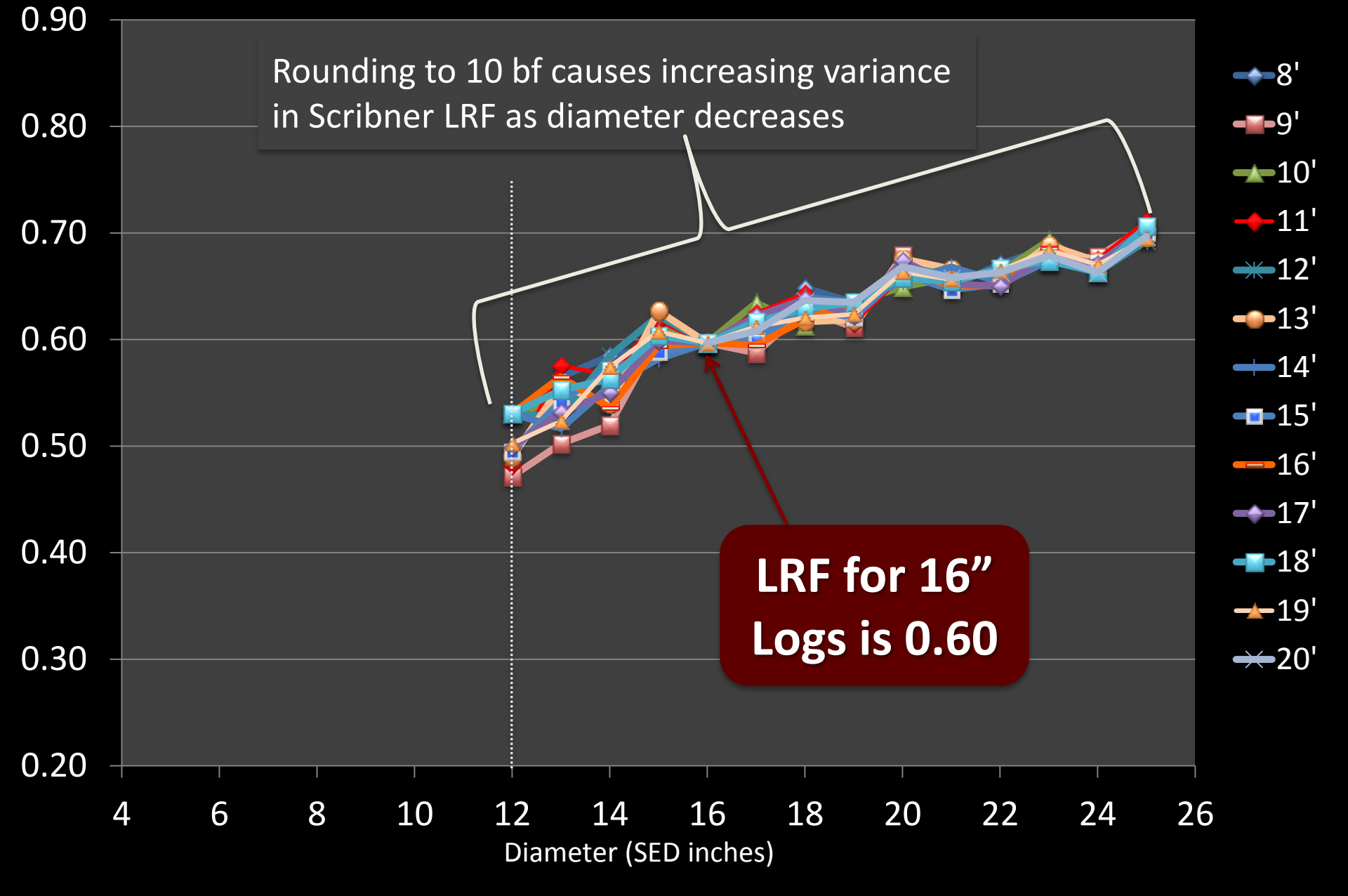
10.0 ÷ 16.8 = 0.60

scaling cylinder only… → **16.8 Cubic Feet**

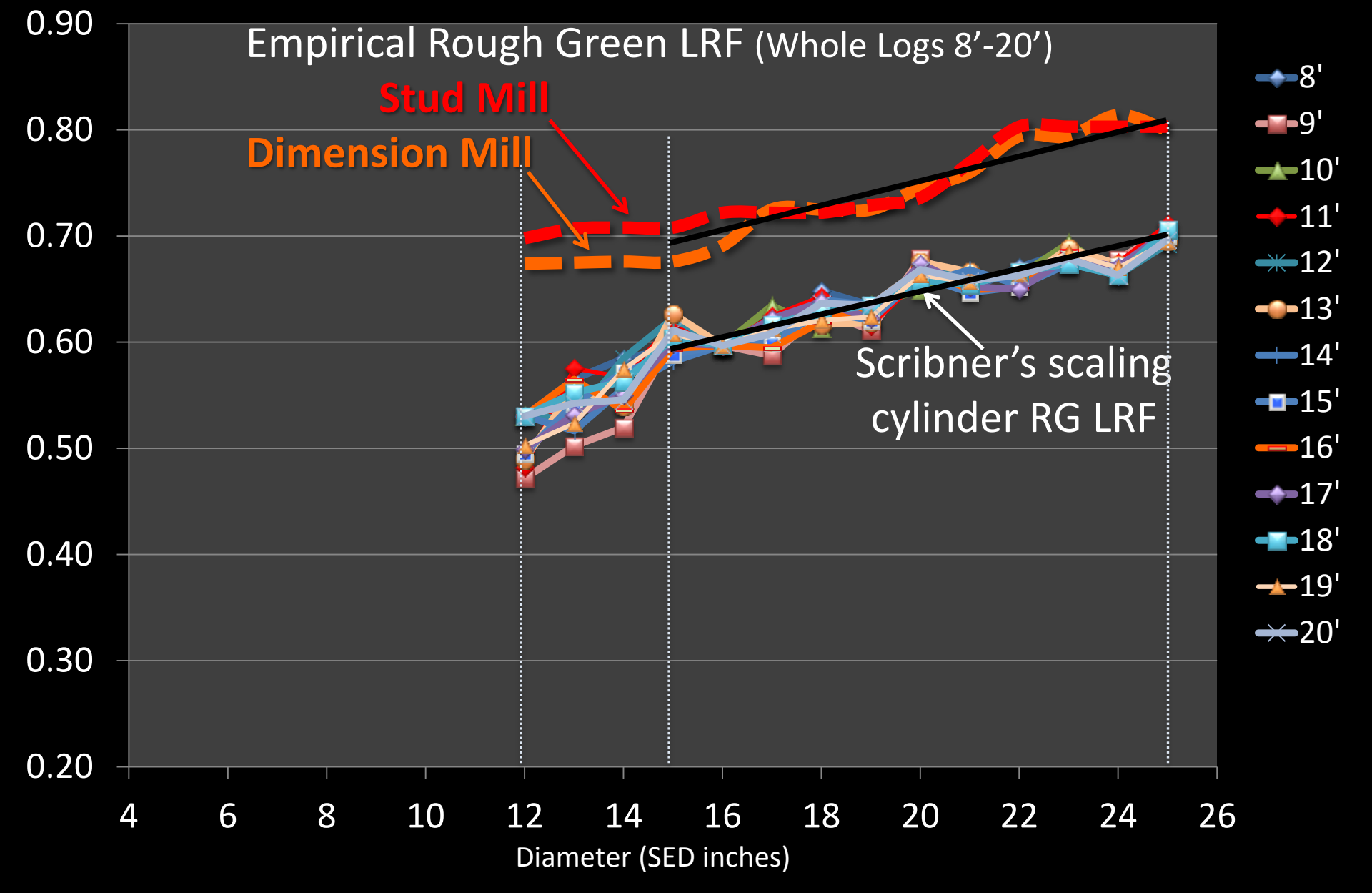
Scribner Scaling Cylinder LRF



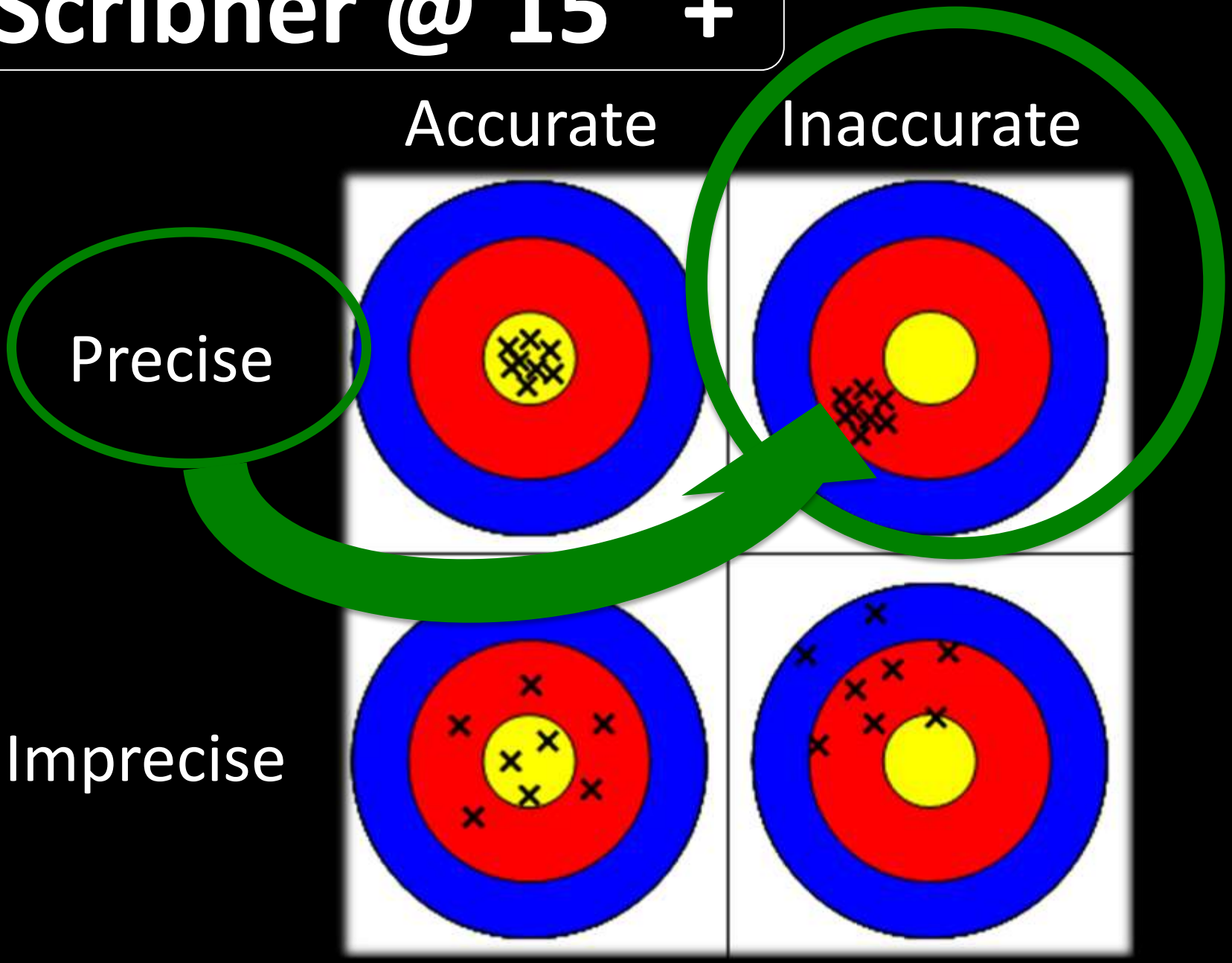
Scribner Scaling Cylinder LRF



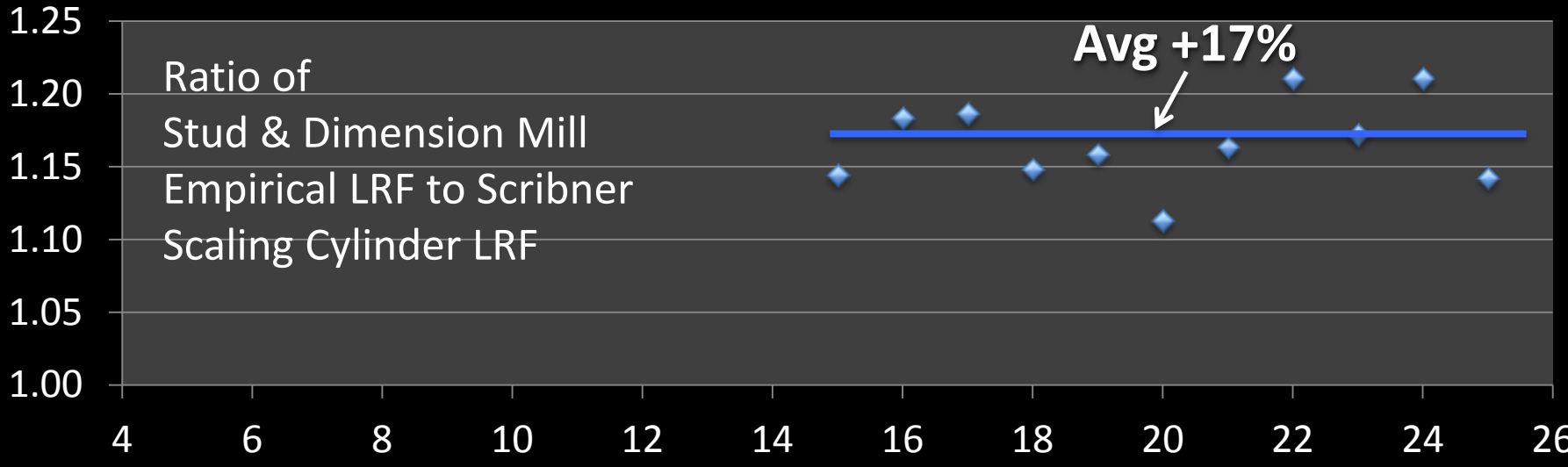
Scribner & Modern Empirical LRF

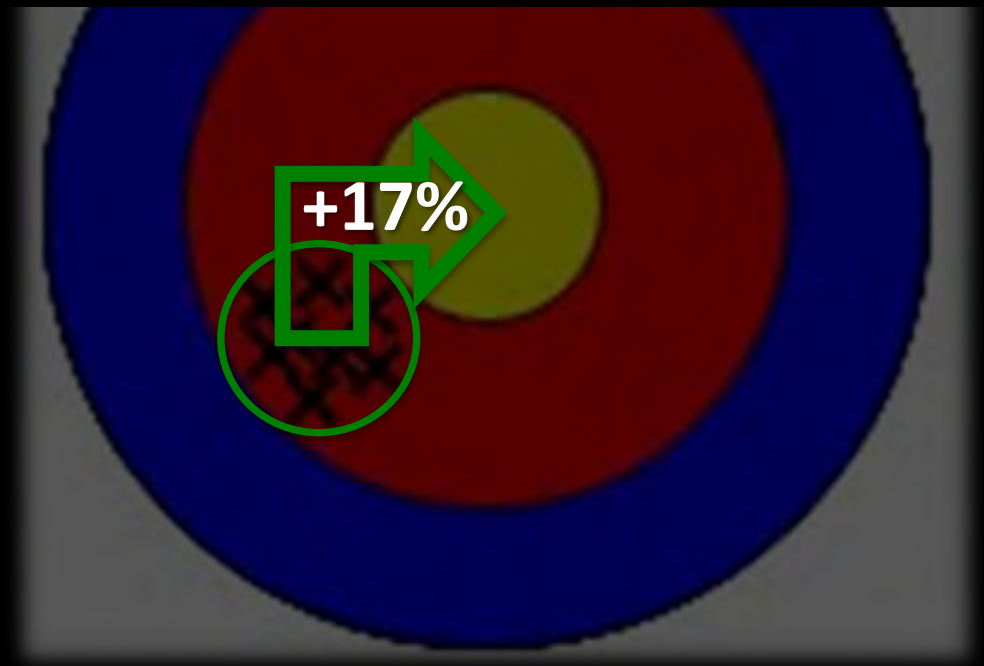


Scribner @ 15” +

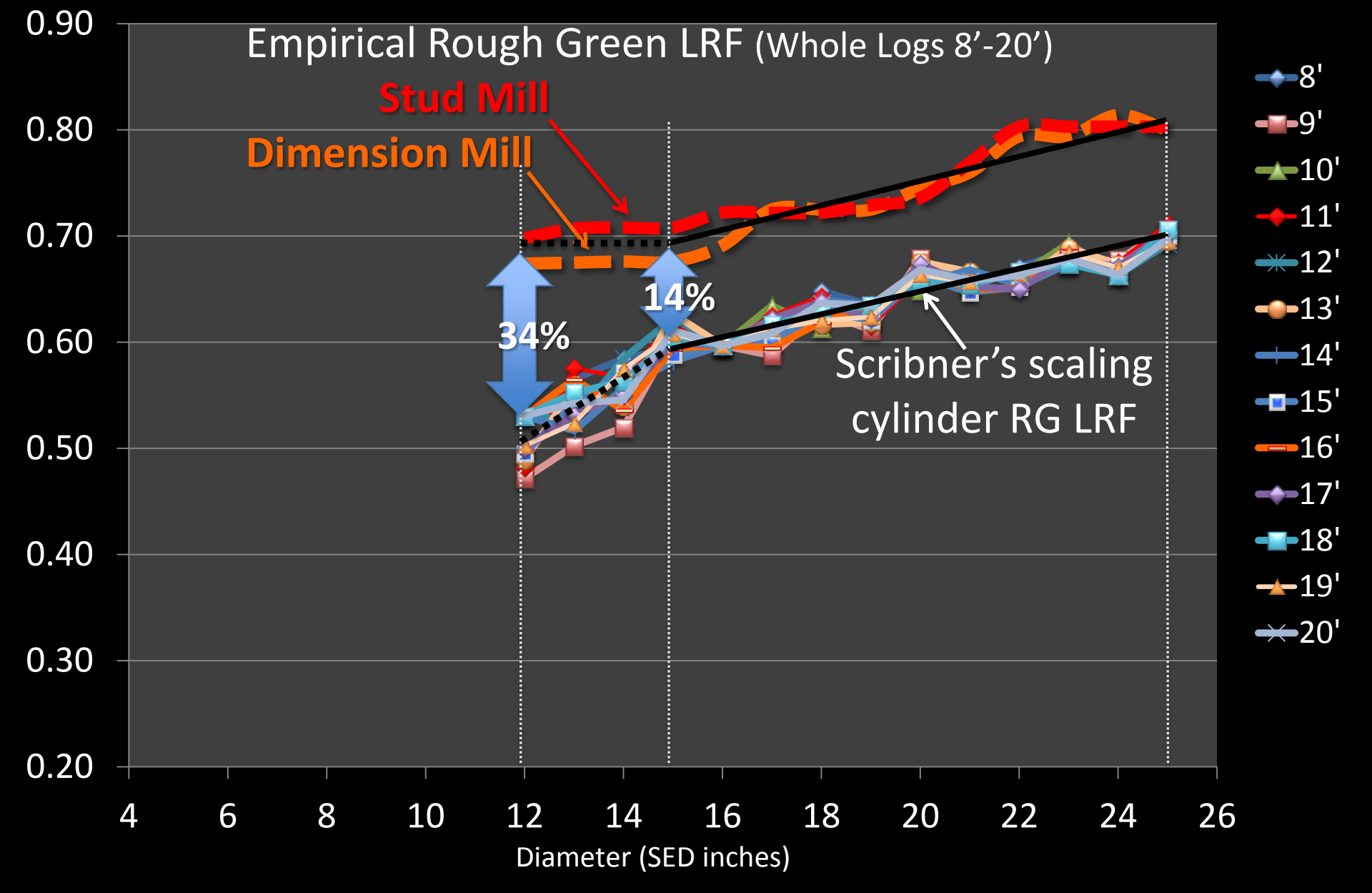


Precise, but inaccurate is correctable …





Scribner & Modern Empirical LRF

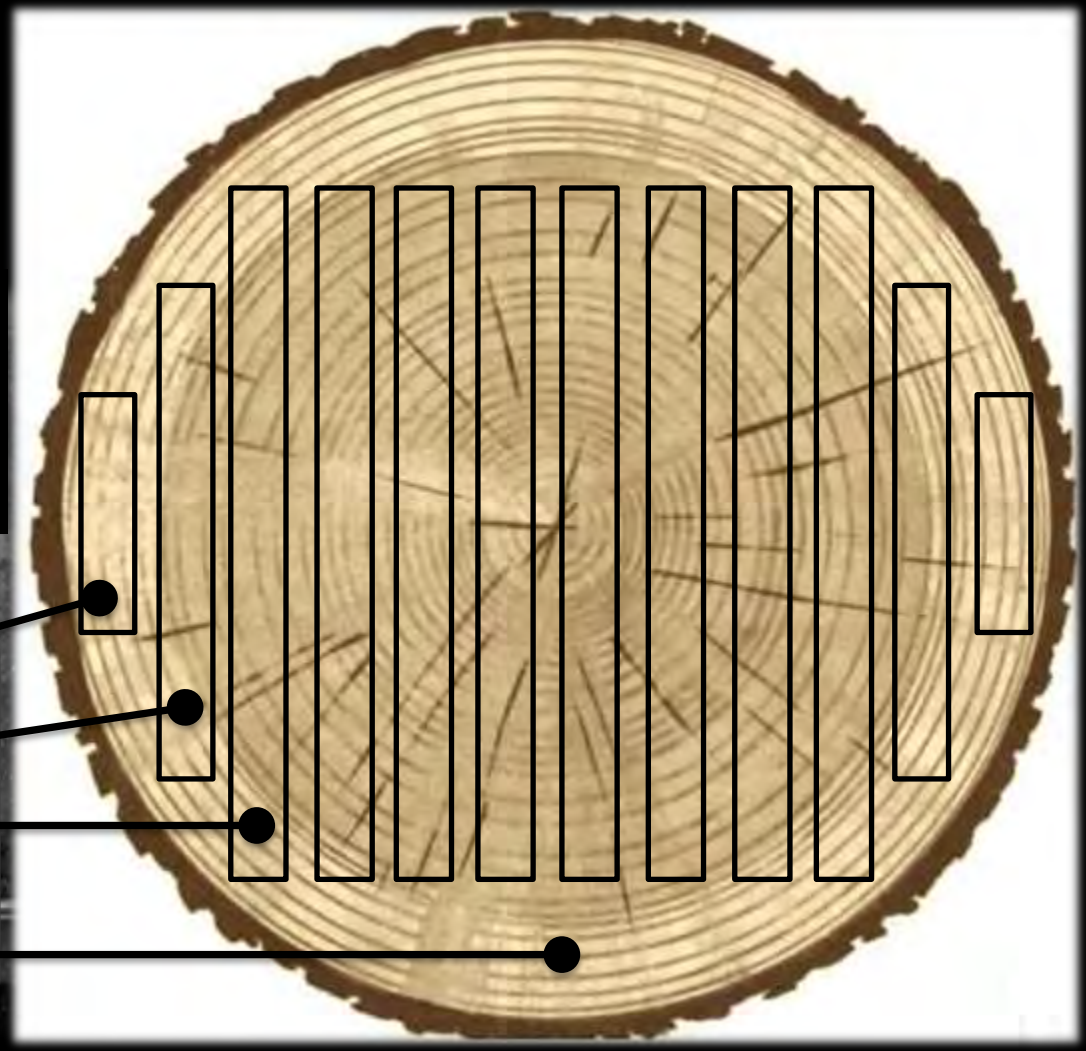


Scribner

LRF = 0.60 or 60%

Slabs, Edgings & Kerf = 40%

16” SED

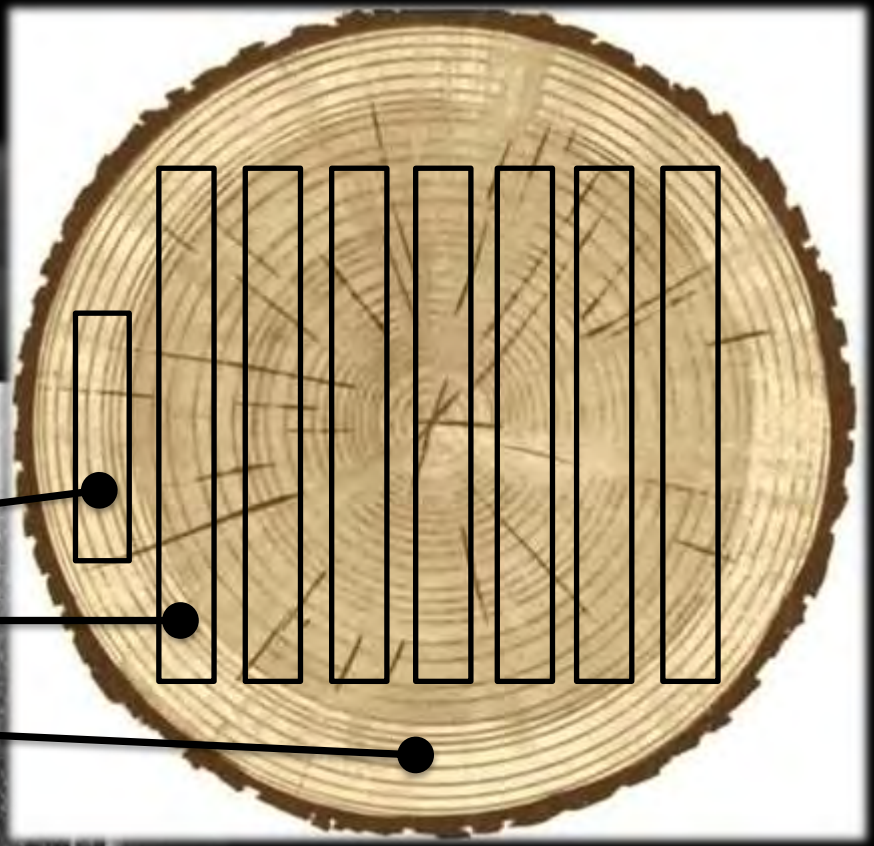


Scribner

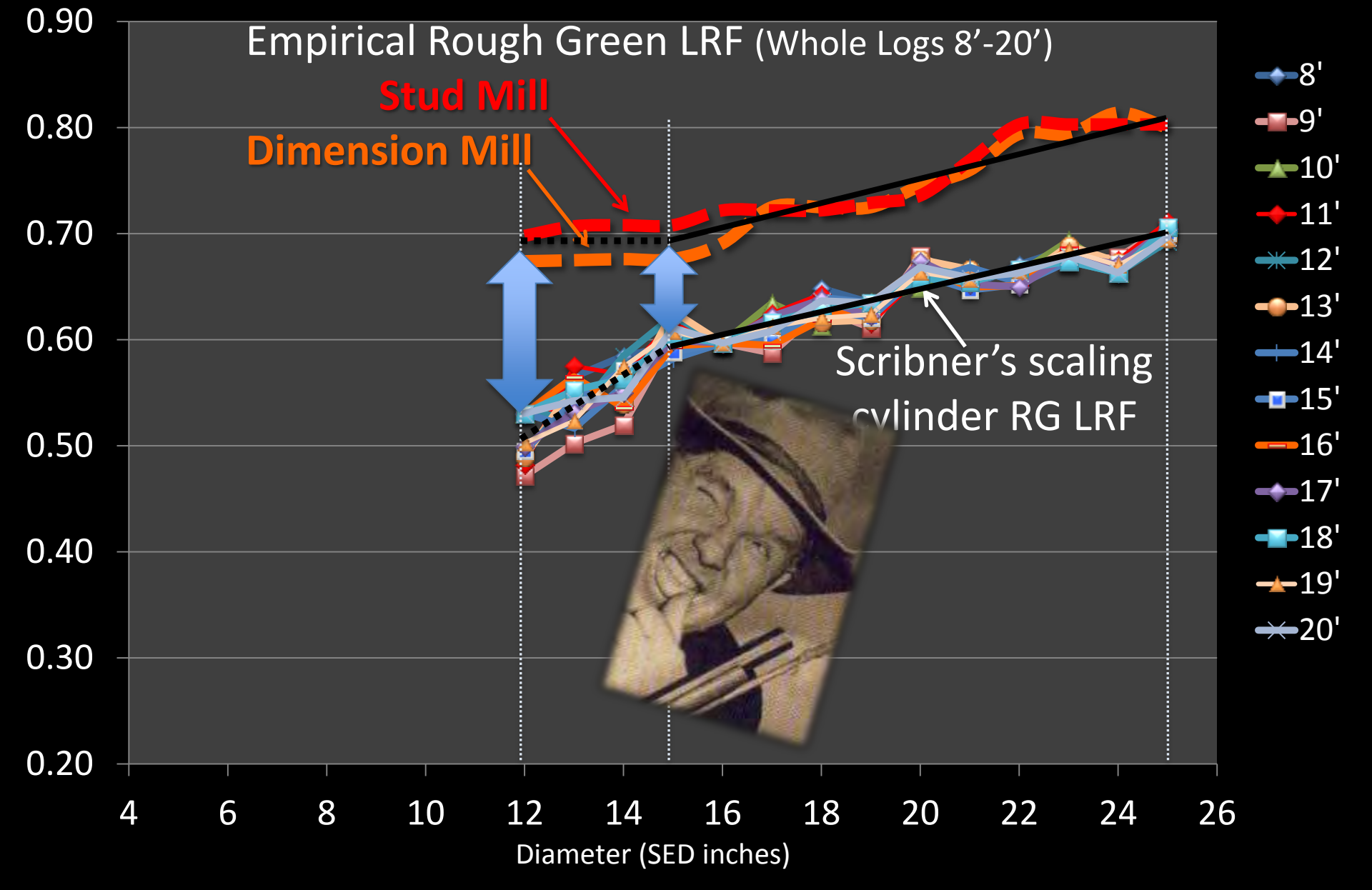
LRF = 0.53 or 53%

Slabs, Edgings & Kerf = 47%

12” SED



Scribner & Modern Empirical LRF



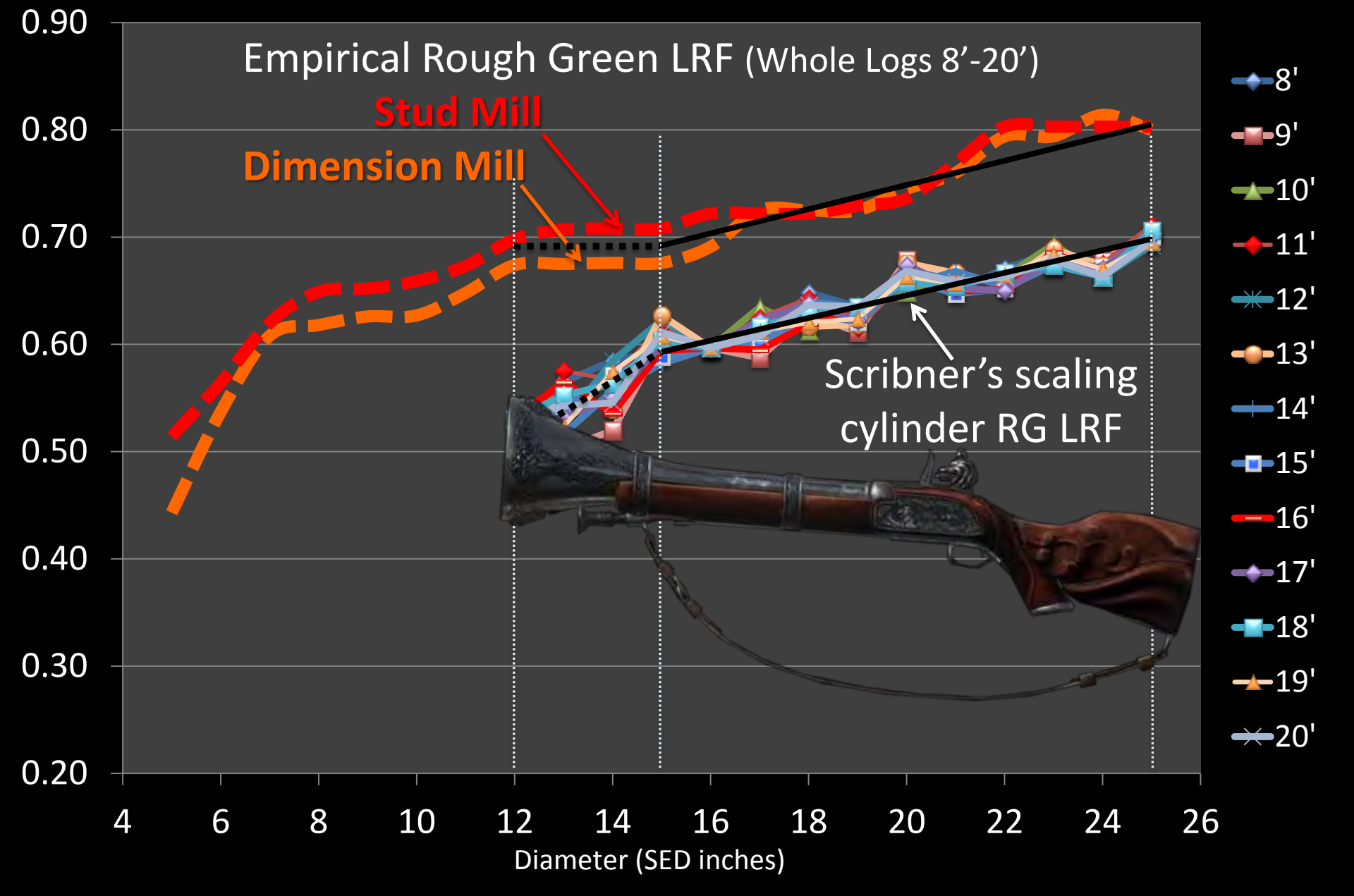
Scribner

"When it comes to extensions of the rule, things get to be very confusing."

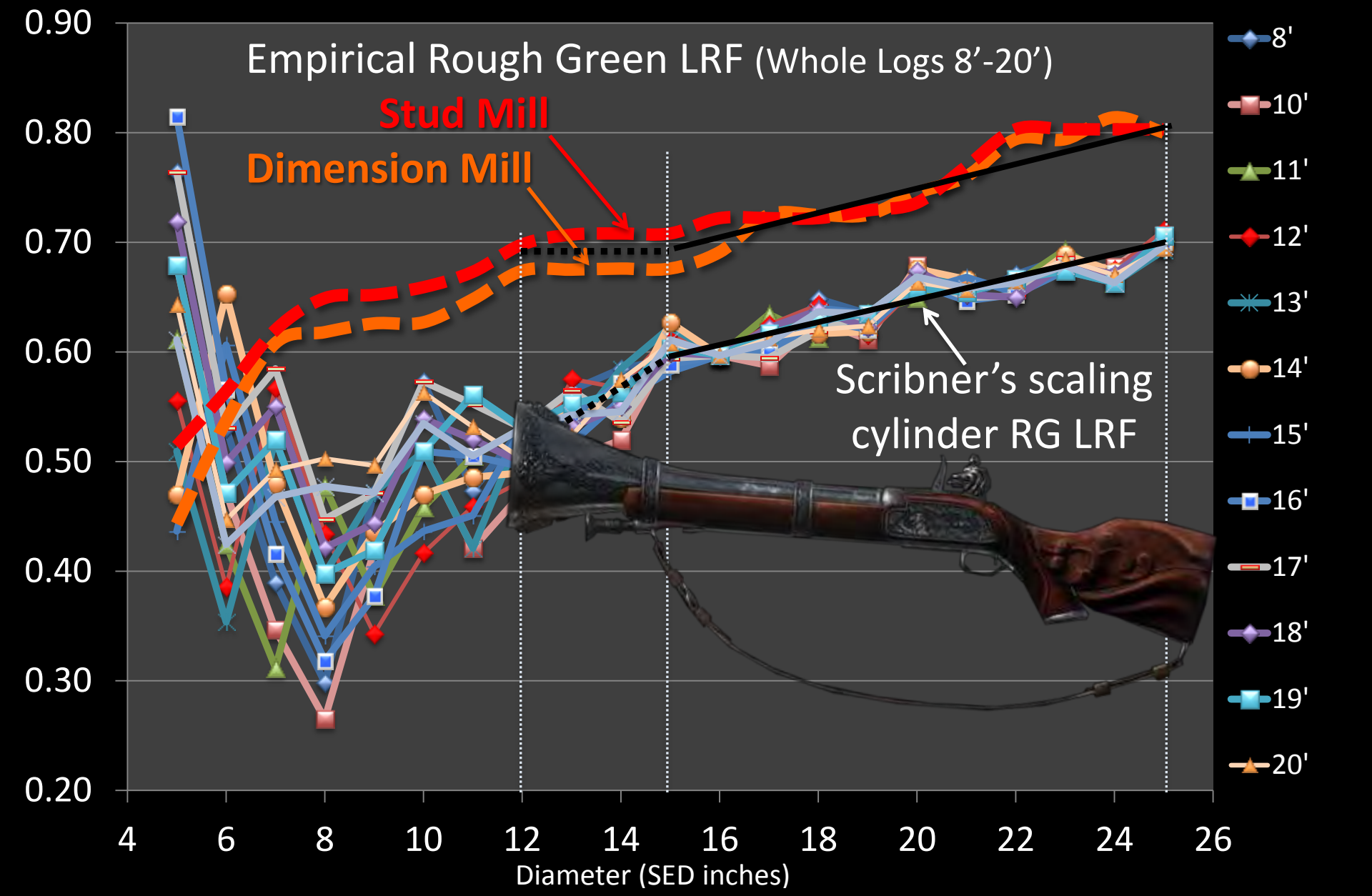
Frank Freese,

Statistician, Forest Products Laboratory
Madison, WI USDA Forest Service
"A Collection of Log Rules"

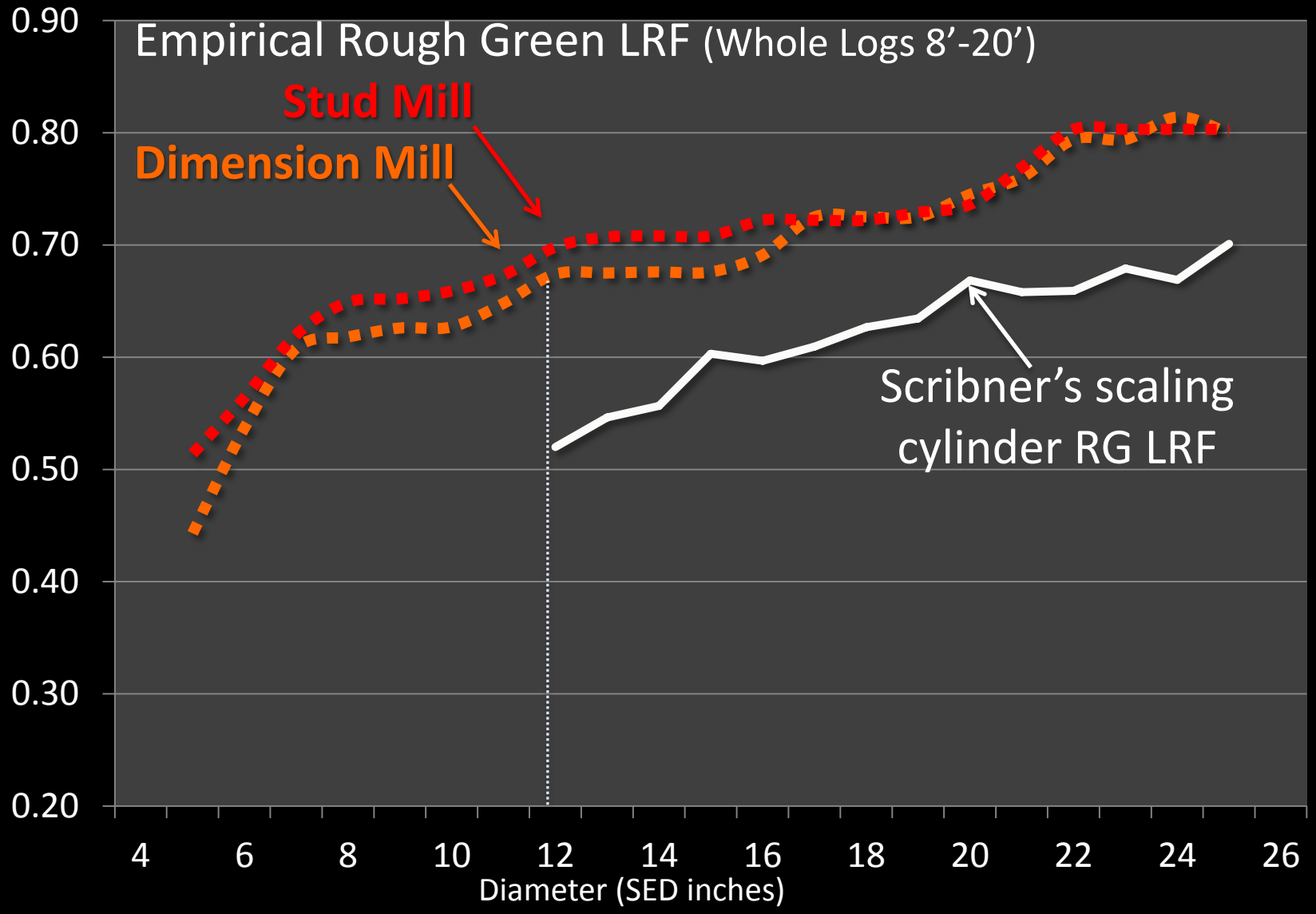
Scribner & Modern Empirical LRF



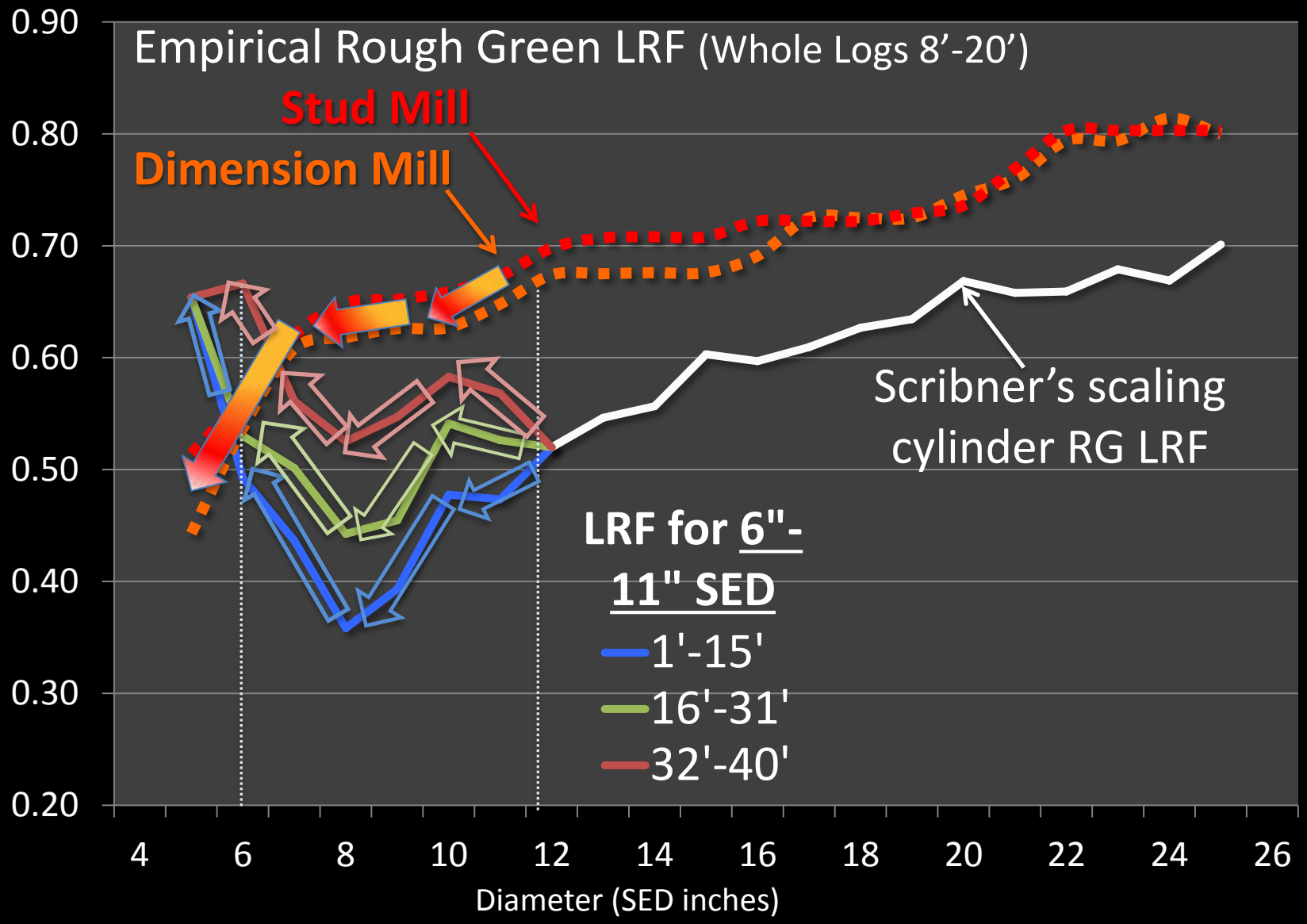
Scribner & Modern Empirical LRF



Scribner & Modern Empirical LRF

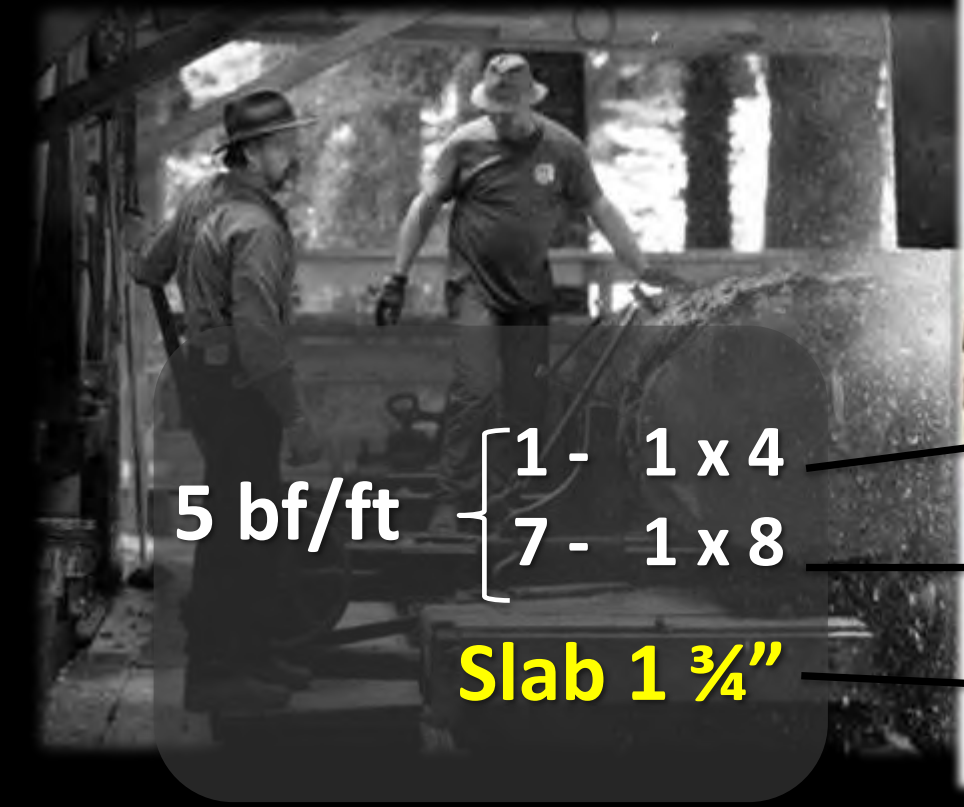


Scribner & Modern Empirical LRF

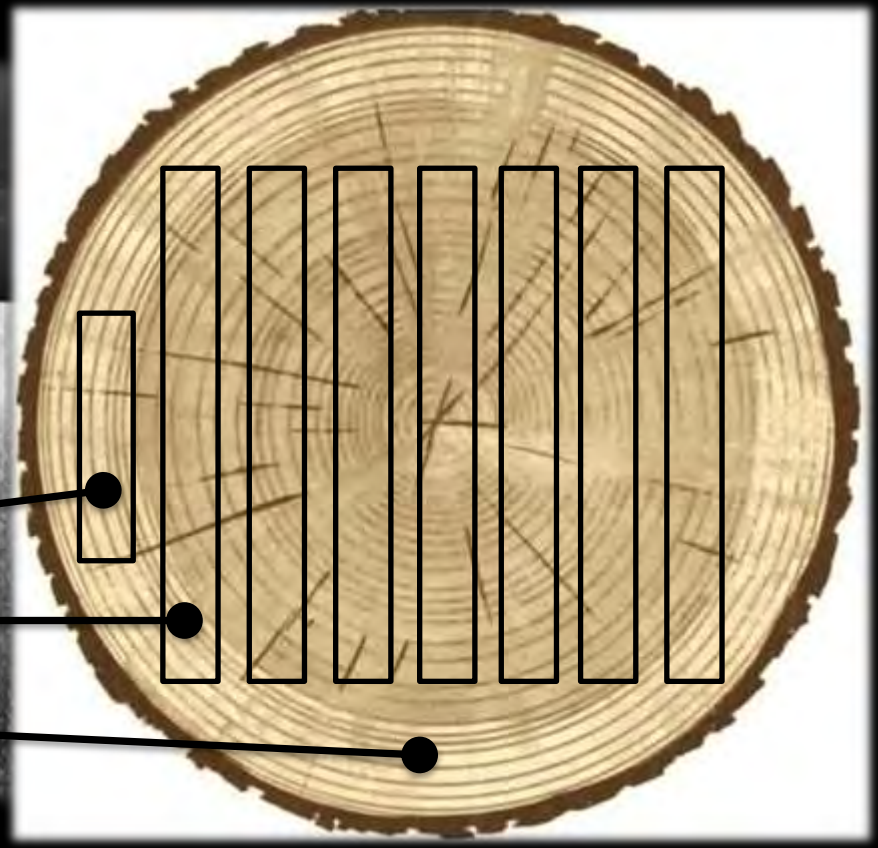


Scribner

then …

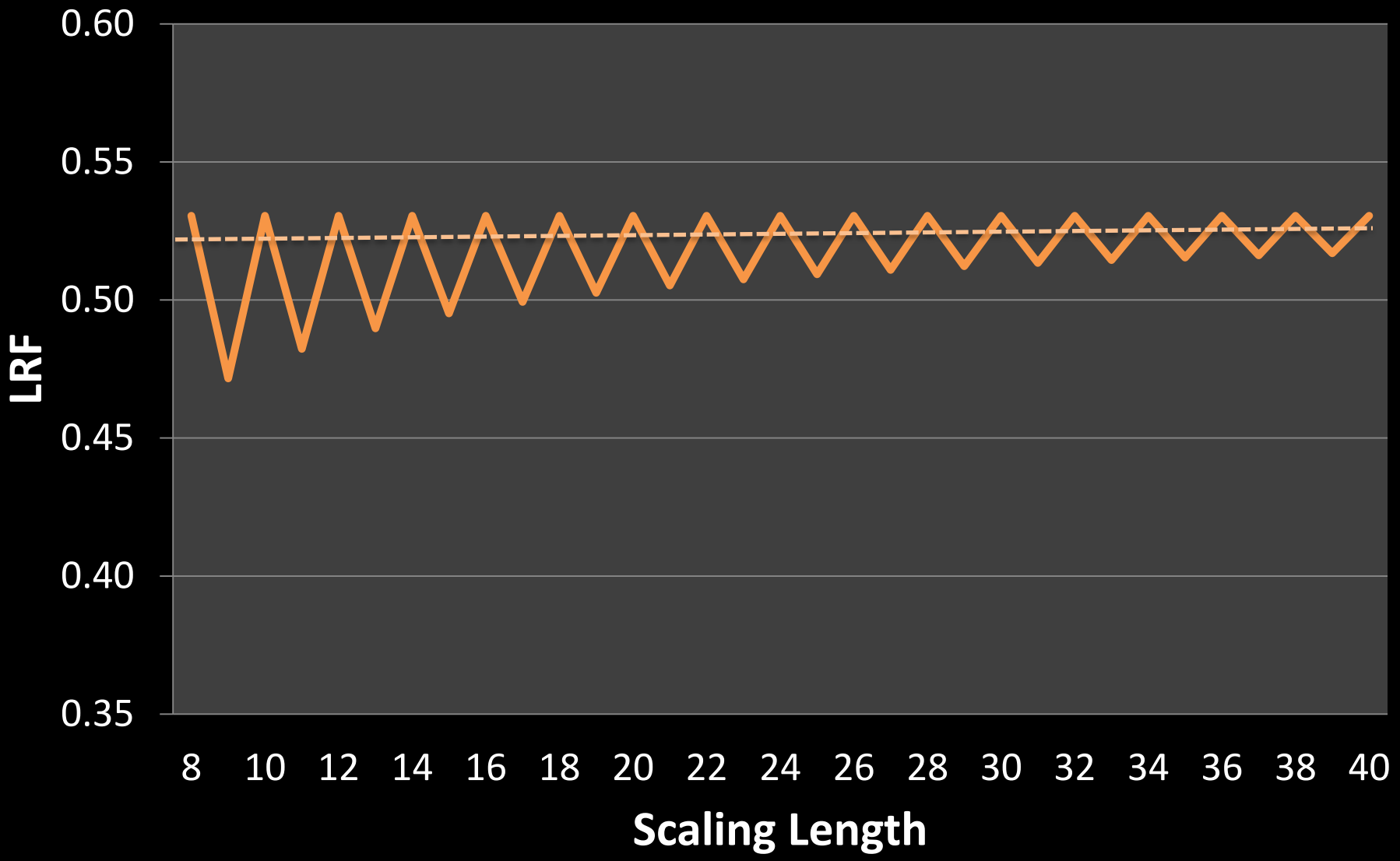


12” SED



- Boards 4”+ in 2” increments
- No Wane

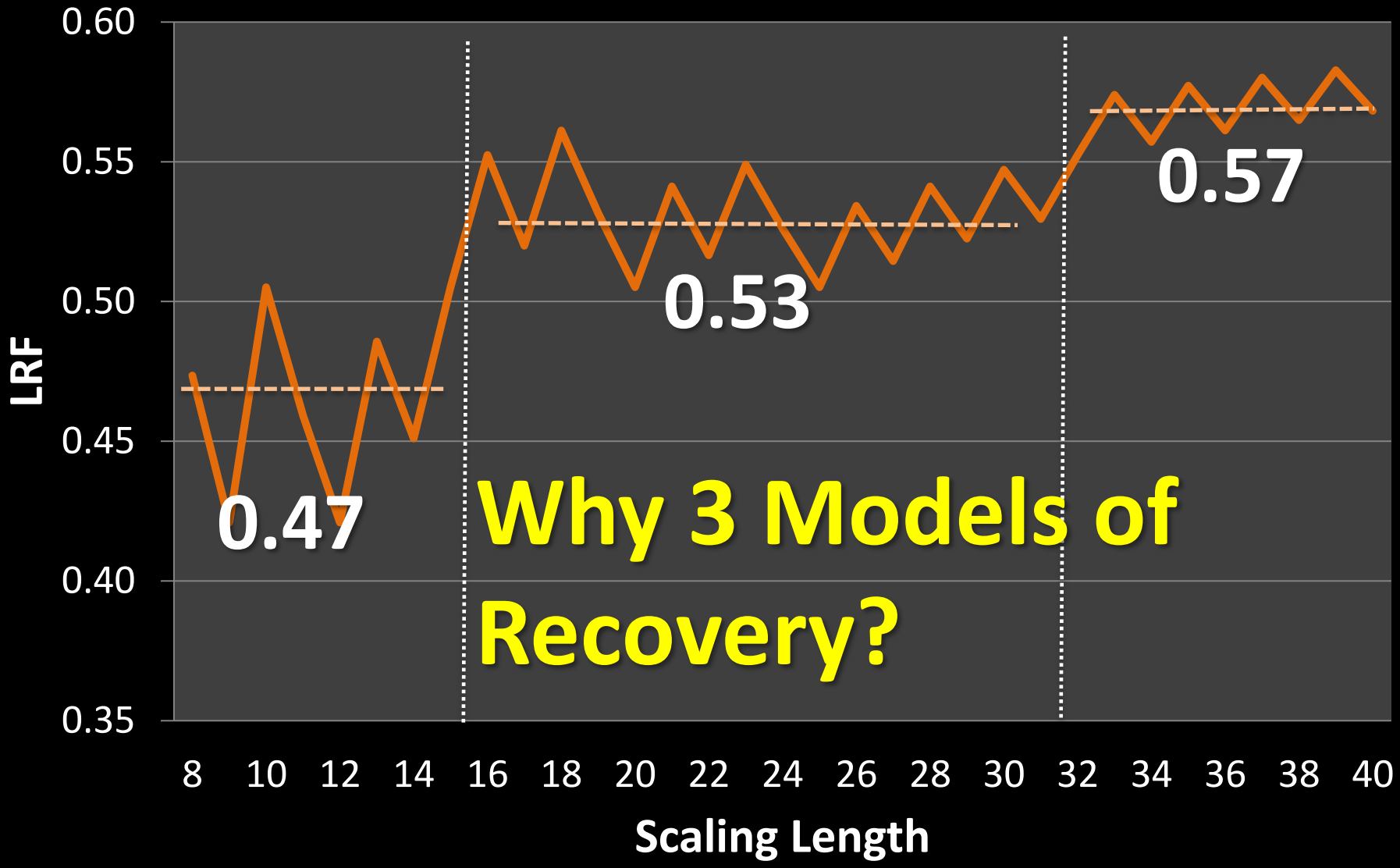
Scribner LRF - 12” SED by Length



“Scribner” - Extension to 11” SED

32’ – 40’	16’ – 31’	>16’
		
0.57	0.53	0.47
	Drop One 1 x 4	Drop Both 1 x 4’s
4.50 bf/ft	2 - 1 x 4 2 - 1 x 8 3 - 1 x 10	1 - 1 x 4 2 - 1 x 8 3 - 1 x 10	1 - 1 x 7 1 - 1 x 8 3 - 1 x 10
	Slabs 1/2”	One Slab 2”	Two Slabs 2”

“Scribner” LRF - 11” SED by Length



“Scribner” - Extension to 10” SED

32’ – 40’	16’ – 31’	<16’
		
0.58	0.54	0.48
	Drop One 1 x 4	Drop Both 1 x 4’s
3.82 bf/ft	3.54 bf/ft	3.13 bf/ft
2 - 1 x 4 1 -1 x 5.8 4 - 1 x 8	1 - 1 x 4 1 -1 x 6.5 4 - 1 x 8	0 - 1 x 4 1 -1 x 5.6 4 - 1 x 8
Slabs 1”	One Slab 2”	Two Slabs ~2”

“Scribner” - Extension to 8” SED

32’ – 40’	16’ – 31’	<16’
		
0.53	0.44	0.36
	Drop One 1 x 4	Drop Both 1 x 4’s
2.20 bf/ft { 2 -1 x 4.2; 3 - 1 x 6 } Slabs 1”	1.85 bf/ft { 1 -1 x 4.2; 3 - 1 x 6 } One Slab 2”	1. 50 bf/ft { 0 - 1 x 4; 3 - 1 x 6 } Two Slabs 2”

“Scribner” - Extension to 6” SED

32’ – 40’	16’ – 31’	<16’
		
All Waney Boards	One Waney Board	One Waney Board
1.57 bf/ft { 2 - 1 x 4; 2 -1 x 5.4 } Slabs <1”	1.25 bf/ft { 3 - 1 x 4; 1 - 1 x 3 } Two Slabs 1”	1. 16 bf/ft { 3 - 1 x 4; 1 -1 x 1.9 } Two Slabs 1”

“Scribner” - Extension to 5” SED

(1’ – 40’)

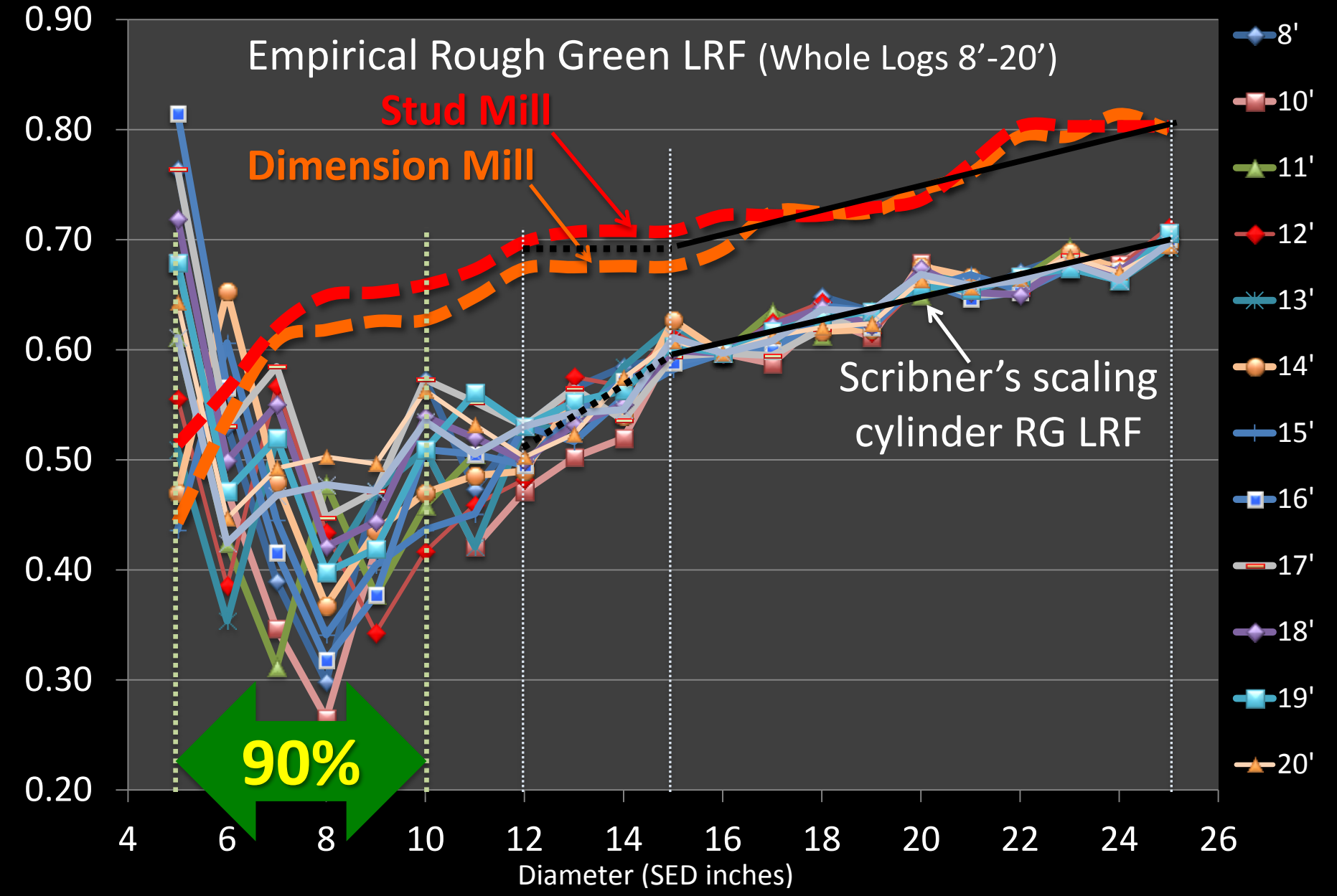
All Waney Boards

1.07 bf/ft

- 2 - 1 x 4
- 1 -1 x 4.8

Two Slabs <1”

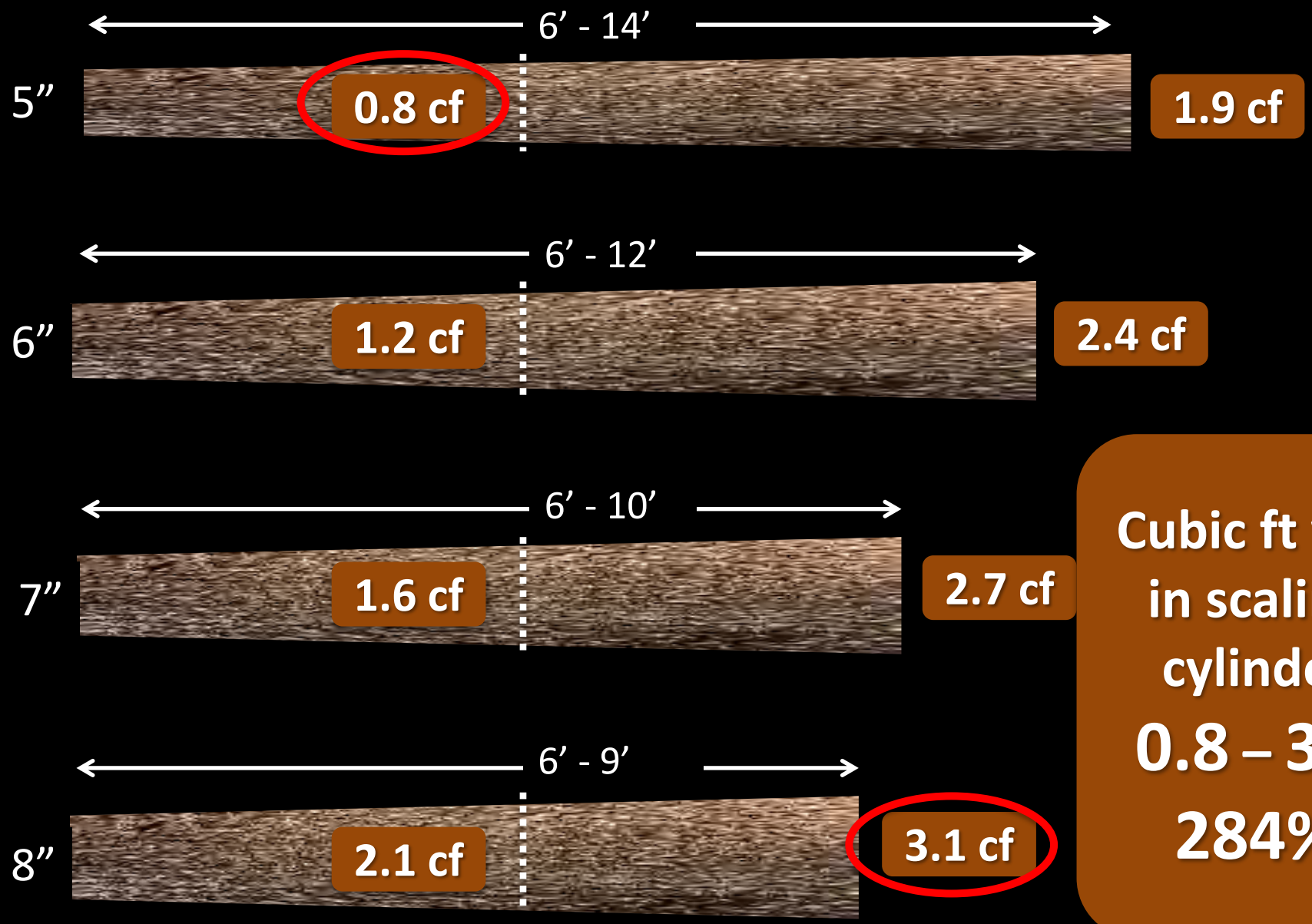
Scribner & Modern Empirical LRF



Scribner

Precision: Capacity to differentiate between logs of different size characteristics

Logs Scribner Scales @ 10 bf

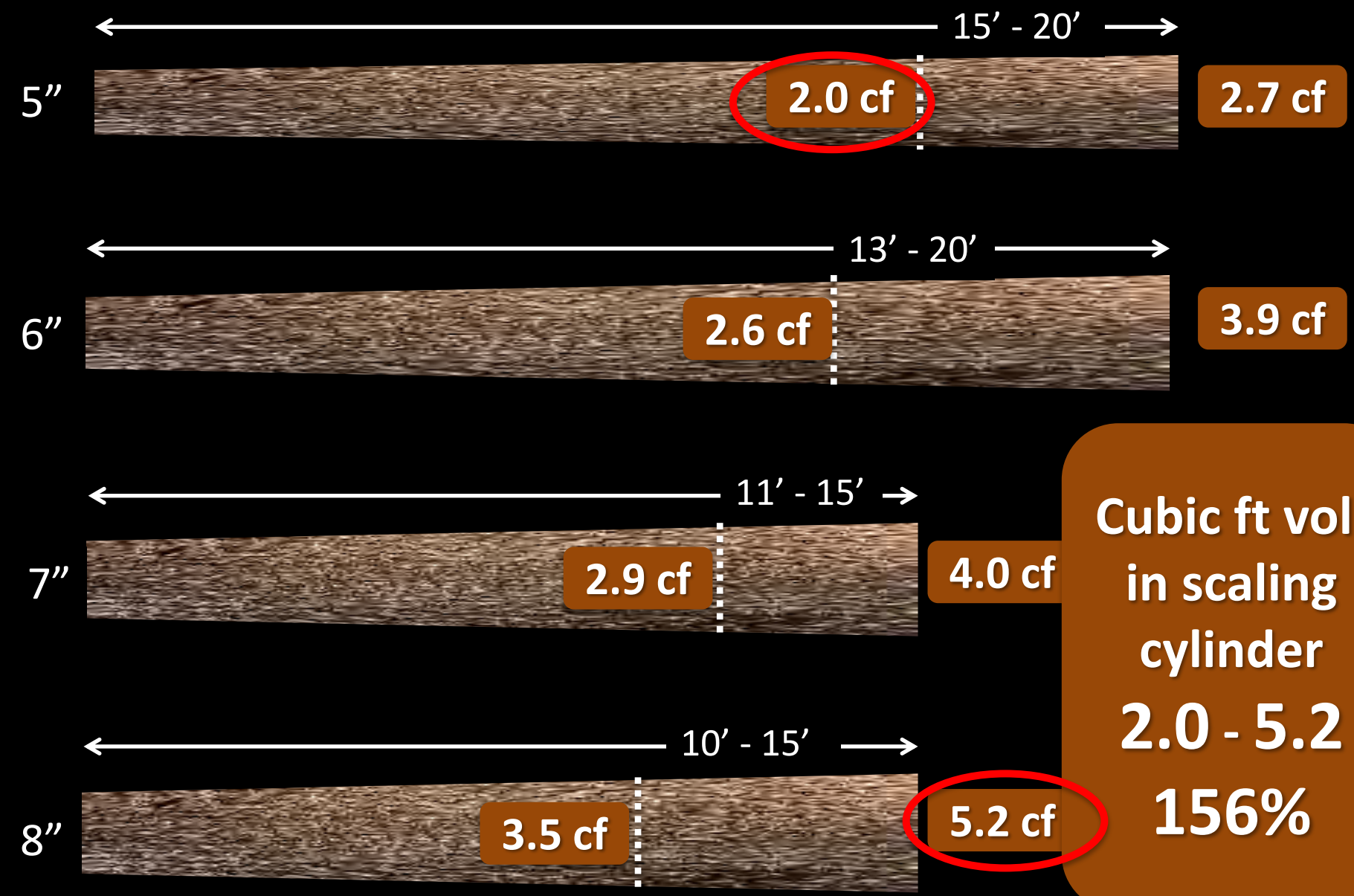


Cubic ft vol. in scaling cylinder

0.8 – 3.1

284%

Logs Scribner Scales @ 20 bf

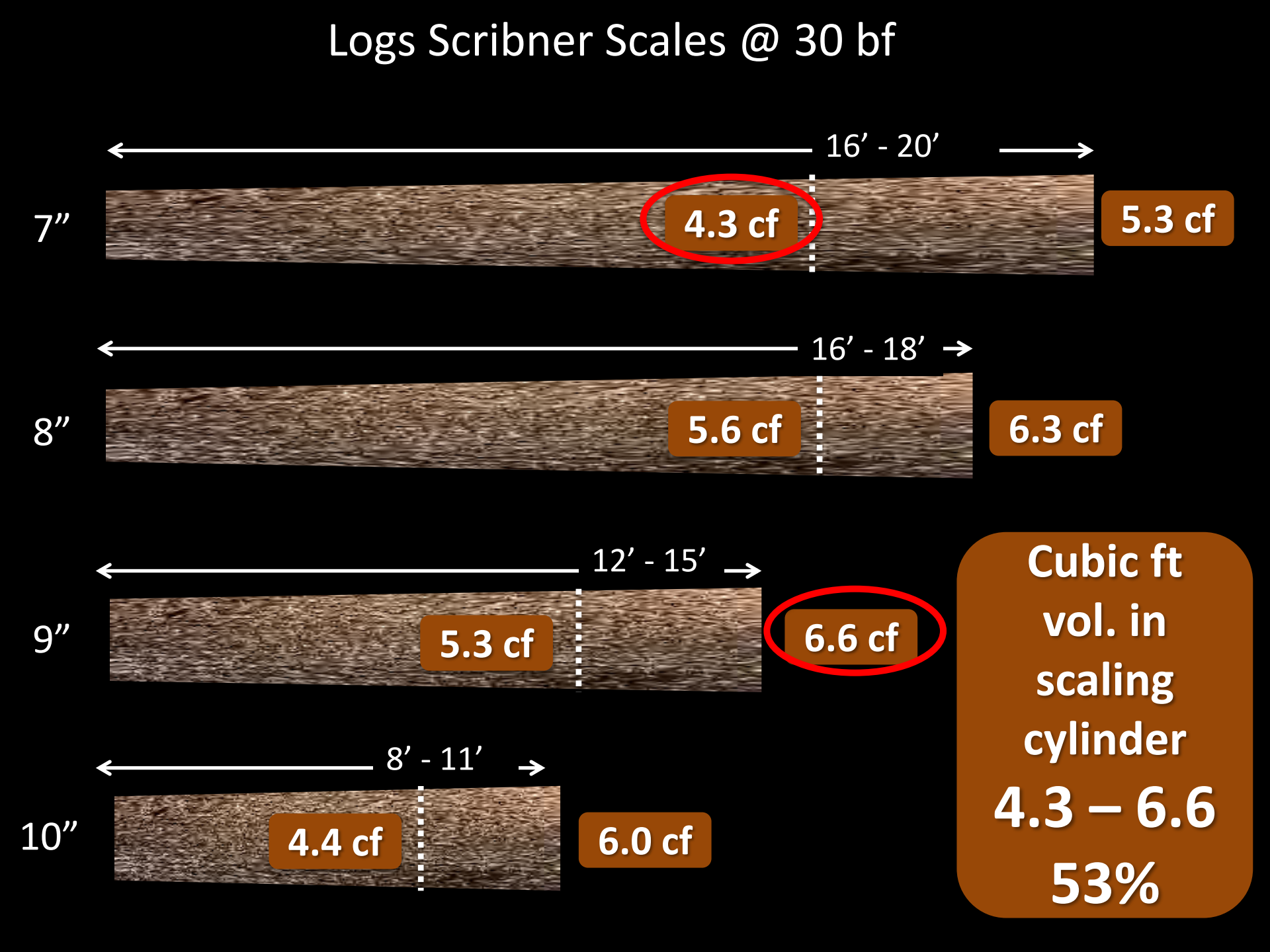


Cubic ft vol. in scaling cylinder

2.0 - 5.2

156%

Logs Scribner Scales @ 30 bf



Cubic ft vol. in scaling cylinder

4.3 – 6.6

53%

“Scribner” @ <12”

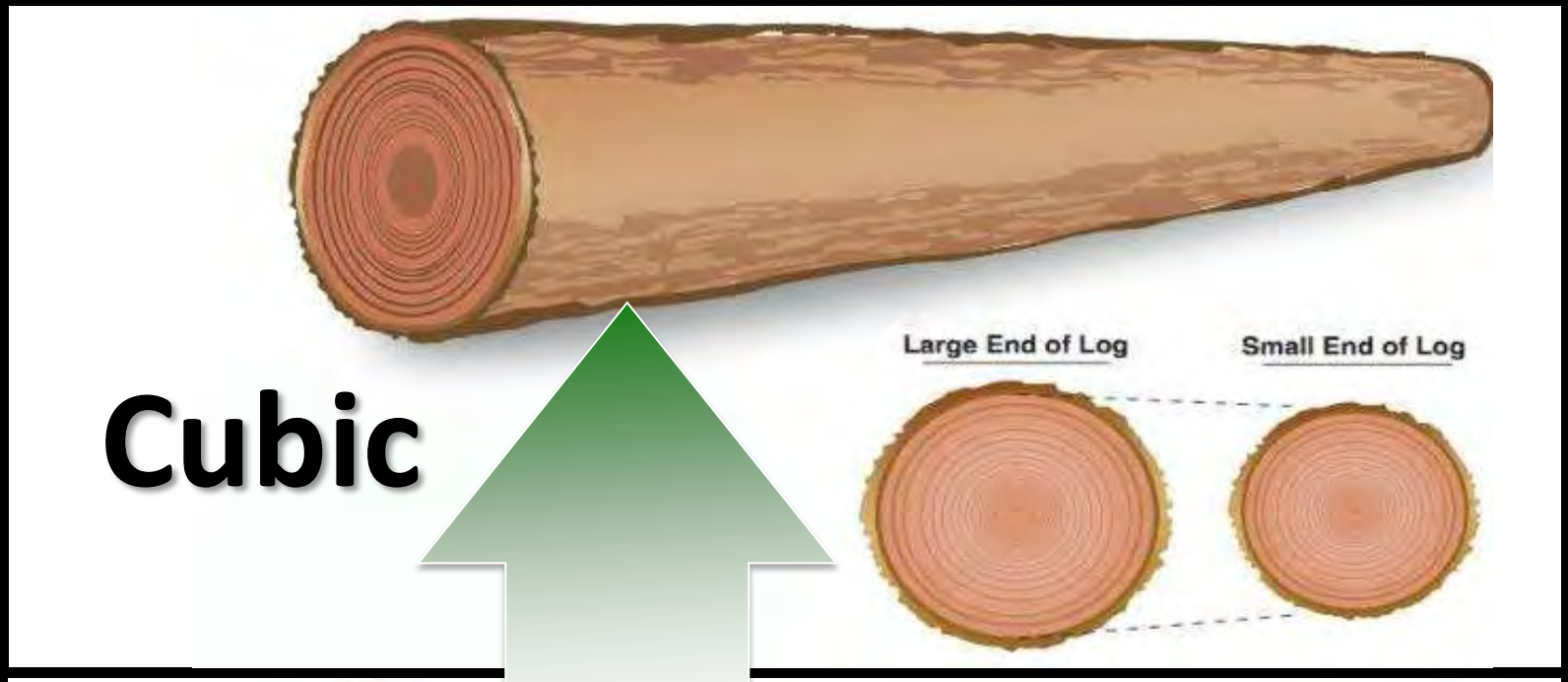
Accurate

Inaccurate

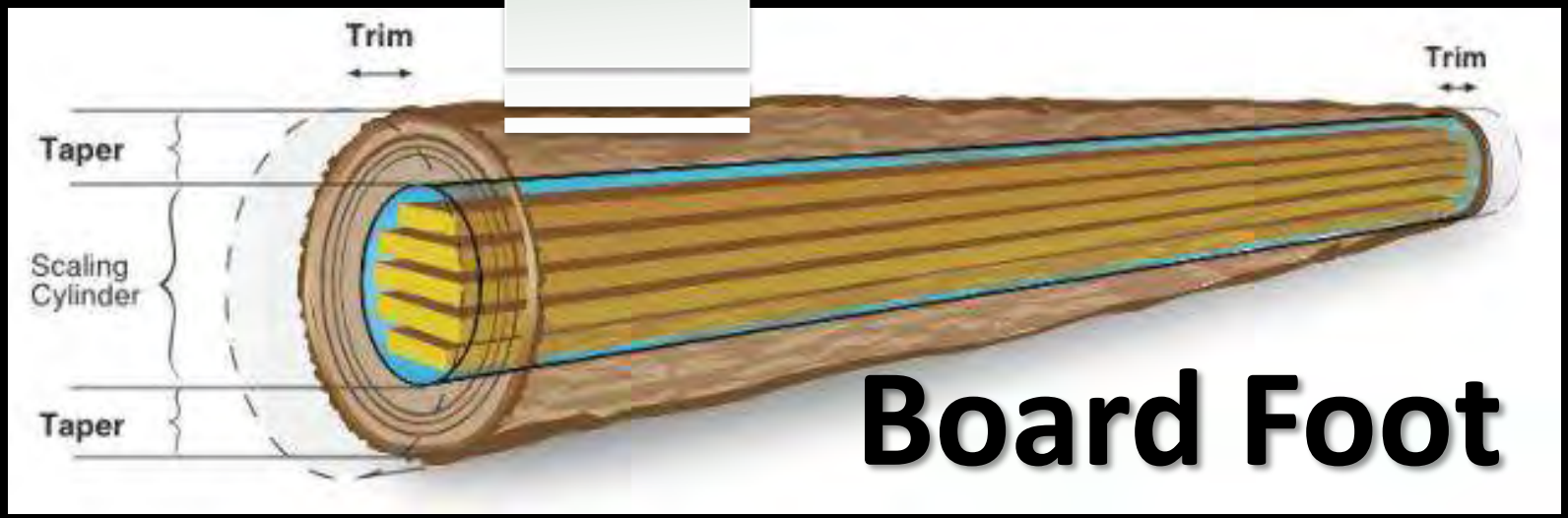
Precise

Imprecise

To Use Cubic Instead!



Cubic



Board Foot

Questions or Comments?